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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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In the Matter of)
)
Amendment of Parts 15 and 90)
of the Commission's Rules to)
Provide Additional Frequencies)
for Cordless Telephones)

ET Docket No. 93-235
RM-8094



To: The Commission

**REPLY COMMENTS
OF THE
AMERICAN PETROLEUM INSTITUTE**

THE AMERICAN PETROLEUM INSTITUTE

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SUMMARY

The American Petroleum Institute ("API") believes that the perceived urgency for designating 48/49 MHz channels for shared use by low end cordless telephones is in need of serious reassessment. A variety of commentators, cordless telephone manufacturers, user groups, and manufacturers of other devices which use the targeted spectrum have all questioned numerous aspects of the proposal. Flaws, many of them fatal, doom the proposal. Those flaws include the inability of the inexpensive cordless telephone to properly monitor the communications of the primary users' land mobile radio systems; the mistaken assumption that the targeted channels are "lightly used"; the impracticality of having the FCC identify and enforce interference complaints against ubiquitous cordless telephone users; the inherent conflict the allocation presents with the regulations of other government agencies; and, the wholly unacceptable interference risk to the Petroleum and Forest Radio Service users who have an absolute need for around-the-clock, interference free, reliable transmissions, especially in the event of a public emergency.

API historically has supported the concept of sharing spectrum in an environment where users have similar

applications and disciplines. However, API cannot support an initiative which will allow countless cordless telephones to utilize the same 48/49 MHz channels that are used for the operation of critical petroleum and natural gas pipeline and refining systems. Cordless telephones do not rise to the public interest level that justifies the action proposed in this proceeding.

The proposed cordless telephone device is incapable of effectively monitoring when a land mobile radio system is using, or wishes to use, the frequency the cordless telephone is selecting. Moreover, the proposed cordless technology does not contain sufficient safeguards to prevent the inadvertent capture of Petroleum Radio Service ("PRS") mobile relay transmitters and causing, in some cases, the wide area retransmission of cordless telephone conversations over PRS systems.

Most worrisome, however, is that this spectrum sharing proposal reflects a lack of understanding of how these channels are used in the petroleum and natural gas industries. Even if the assignments were lightly-used across the nation, that determination would not provide a sound basis upon which to allow inherently flawed, mass-produced cordless devices to flood the market and come in

contact with and disrupt the operations of vital energy industry telecommunications systems. The existing PRS systems were not designed for casual chatting, but to enhance the safe handling of volatile fluids and gases. They are used to perform a necessary function and serve to protect life, property and our environment. That function should not, under any circumstances, be exposed to the real interference dangers these proposed devices present.

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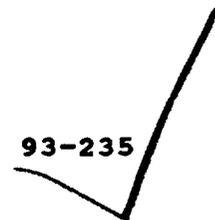
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**REPLY COMMENTS
OF THE
AMERICAN PETROLEUM INSTITUTE**

The American Petroleum Institute ("API"), by its attorneys and pursuant to Section 1.415 of the Rules and Regulations of the Federal Communications Commission ("Commission" or "FCC"), hereby respectfully submits these Reply Comments in response to the Comments filed in the instant proceeding on December 8, 1993.^{1/}

^{1/} In the Matter of Amendments of Parts 15 and 90 of the Commission's Rules to Provide Additional Frequencies for Cordless Telephones, Notice of Proposed Rule Making, 58 Fed. Reg. 51299 (October 1, 1993) (hereinafter "Notice"). The date for filing Comments and Reply Comments in this proceeding was extended to December 8, 1993 and December 23, 1993, respectively. Order Extending Time for Comments and Reply Comments, 58 Fed. Reg. 59977 (November 12, 1993).

I. PRELIMINARY STATEMENT

1. API's interest and serious concern with the proposal advanced by the Commission in this matter was explained in depth in its Comments submitted to the Commission on December 8, 1993. Accordingly, API will not burden this record with a reiteration of its substantial interest in this proceeding.

2. The Commission has proposed in this matter to amend its rules to permit the operation of cordless telephones on fifteen (15) channels from the band 48/49 MHz that are currently dedicated for two-way mobile radio use in the Petroleum and Forest Products Radio Service. API's membership includes many licensees in the Petroleum Radio Service ("PRS") who are authorized by the Commission to employ these channels for critical two-way mobile radio communications systems. These licensees are deeply concerned with the ultimate consequences that would follow adoption of the rule amendments proposed in this proceeding. A review of Comments filed in the proceeding by other parties^{2/} has prompted API to submit these further views.

^{2/} Comments were filed by: American Petroleum Institute ("API"); American Radio Relay League (the "League"); American Telephone & Telegraph ("AT&T"); Association for
(continued...)

Accordingly, API appreciates this opportunity to provide the Commission with the following Reply Comments.

II. REPLY COMMENTS

A. **The Proposed Automatic Channel Selection Mechanism Is Inherently Flawed and Its Use Will Result in Harmful Interference to Both Land Mobile Operations and Cordless Telephone Users**

3. The FCC proposed adopting TIA's suggestion that the cordless telephones using the suggested frequency assignments must have a channel selection capability that will "prevent establishment of a link on an occupied frequency."^{3/} Commentors who addressed the issue are divided on whether the proposed device will effectively prohibit interference with two-way mobile radio use in the Petroleum and Forest Products Radio Service. Those who believe that the device will be effective in generally

^{2/} (...continued)

Maximum Service Television, Inc. & Public Broadcasting System ("MSTV & PBS"); Cobra Electronics Corp. ("Cobra"); Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG"); Forest Industries Telecommunications ("FIT"); North American Foreign Trading Corp. ("NAFTC"); Radio Shack; John C. Thomas; Thomson Consumer Electronics, Inc. ("Thomson"); Telecommunications Industry Association ("TIA"); Uniden America Corp. ("Uniden"); Utilities Telecommunications Council ("UTC"); and, Zenith Electronics Corp. ("Zenith").

^{3/} Notice at ¶ 13.

avoiding harmful interference made conclusory statements to that effect, but they did not address many of the proposed mechanism's inherent flaws.^{4/} Those flaws are numerous and are due to the reluctance to design and implement proper interference prevention mechanisms in favor of low cost solutions. Even the cordless telephone manufacturer Cobra noted that the proposed design is "unacceptable"^{5/} and that "considerably more complexity and cost"^{6/} needs to be added to the product. Importantly, a majority of the Commentors noted that the proposed product will cause interference to cordless telephone users, and many stated that PLMRS would also be adversely affected.^{7/}

^{4/} See, Comments of Radio Shack at 2.

The Commission requested comments on whether there is a need for more specific requirements than the proposal that telephones using the new frequencies must "incorporate an automatic channel selection mechanism that will prevent establishment of a link on an occupied frequency." Radio Shack believes the proposed wording is sufficient to protect against interference to the Private Land Mobile Radio Service . . . , yet awards manufacturers the flexibility needed to implement the requirement.

See also, Comments of AT&T at 4; Uniden at 4-5.

^{5/} Comments of Cobra at 3.

^{6/} Id. at 2.

^{7/} See, Comments of API at 6-9, 11-12; League at 3-4; AT&T at 4; Cobra at 2-4; FIT at 6; John C. Thomas at 1; TIA at 3-4; UTC at 3-4.

4. In particular, the proposed cordless telephone base station would monitor the selected frequency with a "short signaling burst during call set up."^{8/} The burst lasts for less than one second.^{9/} As noted by the above-mentioned Commentors, this process will not prevent interference to either the cordless facility or the land mobile system. The process proposed by the FCC is flawed because it does not account for two common and obvious factors in the operation of two-way land mobile radio systems, mobility and temporary inactivity.

5. A mobile unit can enter a cordless telephone's operating area moments after a link is established. Likewise, a seemingly dormant land mobile transceiver can begin transmitting after a cordless telephone has selected the channel. In both cases, the likelihood of interference is extremely high. Either the cordless telephone user will become subject to interference from the more powerful land mobile transmitter, or the land mobile operator will not be able to operate on a clear channel. The latter case could occur whenever a cordless telephone is operating within a

^{8/} Notice at ¶ 13.

^{9/} Id. at ¶ 12.

few hundred feet of the land mobile radio.^{10/} As for the former, a majority of Commentors, including the petitioner, TIA, are convinced that interference will occur.^{11/}

6. Finally, even the FCC's own research has underscored the fact that there are significant propagation problems in the band 25-50 MHz, "particularly at night."^{12/} These fact-based interference concerns should clearly dismantle any remaining support for placing cordless telephones at the targeted band.

^{10/} Comments of AT&T at 4. See also, Comments of TIA at 3-4, n.7.

^{11/} Comments of TIA at 3-4.

^{12/} In the Matter of Spectrum Efficiency in the Private Land Mobile Radio Bands in Use Prior to 1968, Notice of Inquiry, 6 FCC Rcd 4126, at 4144 EN 29, (released: July 2, 1991).

The propagational characteristics of transmission in that band (25-50 MHz) are significantly less amenable to geographic co-channel separation than in the 150-174 MHz band or above. Transmissions in the 25-50 MHz band that normally provide adequate signal strength over dozens of miles will at times "skip" hundreds or thousands of miles. As a result, particularly at night, all users of a given channel in a particular state may be sharing that channel. In addition, a user of the 25-50 MHz band may at times receive interference from signals originating several states away. The 25-50 MHz band is also more subject to man-made noise (due, for example, to use of engines), a serious problem in heavily urbanized areas.

B. The FCC Will Be Burdened With a Tremendous Amount of Unenforceable Interference Complaints

7. AT&T notes that if harmful interference does occur, the cordless telephone user must cease operations upon notification from the FCC and will not be allowed to resume activities until the interference is eliminated.^{13/} This is clearly impractical. The figures produced by TIA and others indicate that millions of these proposed devices will flood the market in a matter of years if this proceeding allows for their sale to the public. There is simply no way for the FCC to conceivably be able to track down the "hundreds or thousands" of interference complaints from cordless users that are likely to result.^{14/}

8. Moreover, most of the members of the public who purchase and use these devices, despite any literature which warns them otherwise, will likely expect no interference to occur while they are talking. When interference does occur, the resulting clamor at the Commission and in the press will be extremely unpleasant and unmanageable. Unfortunately, because members of the public will not understand that their

^{13/} AT&T at 3.

^{14/} Comment of FIT at 5. (FIT maintains that cordless users will generate "hundreds or thousands" of complaints.)

devices are secondary to primary users, such as PRS systems, the land mobile community will bear the brunt of negative publicity and legal actions that result.^{15/} This prospect is untenable.

C. Assertions That the 48/49 MHz Band Is "Lightly-Loaded" Are False and Unfounded

9. Some Commentors have stated that the 48/49 MHz band is either lightly-used or lightly-loaded.^{16/} These assertions may have originated from TIA's 1992 petition which stated that the channels were lightly-used.^{17/} The FCC added that its research revealed that there are "less than 2000 mobiles" operating on each of the targeted 49 MHz channels.^{18/}

10. In fact, the 48/49 MHz frequencies are not lightly loaded. FIT notes that it conducted a study showing that

^{15/} See generally, Comments of UTC.

^{16/} See, Comments of Radio Shack at 2; Comments of Uniden at 3.

^{17/} In the Matter of Amendment of the Commission's Rules to Establish New Frequencies for Cordless Telephones Near 44 and 49 MHz, Petition for Rule Making, by the Telecommunications Industry Association's Personal Communications Section, at 4 (filed: August 20, 1992).

^{18/} Notice at ¶ 9

the 48/49 MHz frequencies are well used, especially in metropolitan areas.^{19/} Indeed, there are at least six (6) of the targeted channels that have more than 2,000 authorized mobiles.^{20/} Unlike Uniden's "research" which claims to reveal that the designated channels are lightly loaded but does not provide any supporting facts,^{21/} research conducted by FIT and API actually cites numbers, frequencies and equipment operating locations.^{22/} This quantifiable research affirmatively demonstrates that the "lightly-loaded" allegations are false. Because the channels are not lightly loaded, they do not meet TIA's own criteria; and, accordingly, the proposed rule amendment should be rejected and this proceeding promptly terminated.

D. If the Targeted 48/49 MHz Channels Became Lightly Loaded, the Allocation Would Still Be Plainly Incongruent and Unjustifiable.

11. Use of the PLMRS channels for secondary sharing with low-end cordless telephones is clearly untenable.^{23/}

^{19/} Comments of FIT at 4.

^{20/} API Comments at 14.

^{21/} Uniden at 3.

^{22/} Comments of FIT at 4, API at 13-14.

^{23/} Comments of UTC at 2.

The two services are substantially dissimilar and inherently incompatible.^{24/}

12. Because the cordless telephone's monitoring system will have an extremely limited range, it physically cannot account for the mobility of PRS users and will be unable to provide for the practical monitoring of private land mobile operations on the frequency it chooses to use. For example, if the cordless phone monitors a frequency prior to establishing a link and does not sense that the frequency is occupied, it will establish the link. This link may very well cause interference on an occupied frequency. The reason for the device's failure is that the monitoring device does not account for land mobile operations being "mobile." A conversation on a private land mobile channel involving a vehicular unit will not be detected when the vehicle is out of range. Yet, when the unit moves into range of the cordless device, its higher power signal will interfere with the cordless user's conversation. If a vehicular unit operating in a PRS system moves into close proximity to a cordless user, and essential communications to and from the vehicle are thwarted due to interference, the lives and property of those in the community could be

^{24/} See, Comments of API at 9-11; Comments of UTC at 2.

unnecessarily endangered. As a growing number of these cordless units are purchased by the consuming public, the frequency of interference cases will increase. They can be expected to generate an escalating number of complaints to the FCC from bewildered consumers and frustrated private land mobile radio licensees.

13. The proposed monitoring mechanism makes no accommodation for a primary licensee's need to activate channel usage whenever it wishes. For example, if a land mobile system's transmitter is momentarily dormant, the monitoring device will not consider the channel occupied and thus establish a link. Seconds later the attempted transmission of a critical message or an automatic alarm signal could essentially destroy the telephone conversation or the reliability of the private land mobile transmission could be compromised. In the latter event, a garbled emergency transmission could put a Petroleum Radio Service licensee in direct violation of U.S. Department of Transportation ("DOT") regulations.

14. DOT regulations mandate that each operator of a hazardous liquid pipeline establish communications systems designed to carry operational information and data necessary to promote safe pipeline operations. By regulation, these

communications systems are required to reliably transmit monitoring data, emergency messages, voice communications between control centers and critical points along the pipeline, and communications to and from emergency rescue personnel.^{25/}

15. Pipeline communications system transmissions which are subject to interference from the predominately socially-oriented calls of cordless telephones would obviously be in direct conflict with the DOT regulations. Importantly, the vital transmissions of a PRS maintenance or recovery team could be jeopardized because of harmful cordless telephone interference with the potential result being the preventable loss of life, property or environmental resources. During such emergencies, attention from government investigators and television news cameras is frequently focused on the pipeline or refinery operator. However, if it becomes apparent that the clean-up or rescue effort was hindered due to interference from cordless telephone operations, this proceeding may very well become the subject of much

^{25/} See Part 195 of the DOT Rules and Regulations governing "Transportation of Hazardous Liquids by Pipeline, 49 C.F.R. Part 195 (1988). See also DOT Rules and Regulations governing "Liquified Natural Gas Facilities: Federal Safety Standards," 49 C.F.R. Part 193 (1988), and "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards," 49 C.F.R. Part 192 (1988).

scrutiny; and the ultimate answer as to why low-end, poorly designed cordless phones were allowed to operate on these channels will have to come from the FCC.

E. Under TIA's Own Stratagem, the Requested Cordless Allocation Should Be Denied

16. In 1990, through their initial Petition for additional spectrum for cordless telephones, TIA recognized that a variety of new cordless technologies were on the horizon and that those devices would operate in a fashion similar to that of cordless telephones.^{26/} Moreover, TIA acknowledged that as the popularity of these devices increased, they would become less expensive.^{27/}

17. Today, as 1994 approaches, it is obvious that the customer base which was drawn to the cordless devices in the late 1980s will soon have the opportunity of choosing from a veritable menagerie of new cordless communications devices. Back in 1990, TIA recognized that such a time may come. Further, TIA stated that such an event would spur reductions

^{26/} In the Matter of Amendment of the Commission's Rules to Allocate Additional Spectrum For Cordless Telephones On A Primary and Protected Basis, Petition for Rule Making, by the Telecommunications Industry Association's Personal Communications Section, at 17, (filed: April 30, 1990) (hereinafter "1990 TIA Petition").

^{27/} Id. at 18-19.

in the amount of spectrum allocated to cordless telephones.^{28/}

III. CONCLUSION

18. In 1990 TIA correctly forecasted that other cordless devices would eventually reduce the need for spectrum requested for cordless telephones. A variety of wireless technologies, including wireless PCS and cordless telephones employing other spectrum have been awarded allocations. Wireless communications devices of almost every imaginable design are, or will soon be, available to the public. This is obviously not a time to be awarding additional spectrum for a low-end analog device which is a serious interference risk and is unfortunately slated for shared use in a well-used frequency band whose primary licensees have critical, incompatible operating requirements. If the allocation is awarded, it may set the stage for serious disruption to essential communications,

^{28/} If in time, however, CT-2 units do become price competitive with cordless telephones, market demand for cordless telephones will decrease as users migrate to CT-2 and so will the industry's need for spectrum. At that time, if appropriate, adjustments can be made to reduce the amount of spectrum allocated to cordless telephones. (Emphasis supplied.)

Id. at 19.

conflict with the safety communications regulations of other federal agencies, and generate an expanding number of practically unresolvable complaints from private land mobile users and members of the public who encounter interference.

19. Upon serious reflection, it is evident that the proposal is simply unacceptable. The demand for absolutely reliable communications systems to monitor and maintain the safe transport of volatile liquids through pipeline systems has never wavered in its importance. The same cannot be said for the instant request. The advent of newer unlicensed wireless technologies which already have spectrum allocations clearly reflects the reality that the asserted need for the requested spectrum -- if ever valid -- is no longer present.

WHEREFORE, THE PREMISES CONSIDERED, the American Petroleum Institute respectfully submits the foregoing Reply Comments and urges the Federal Communications Commission to decline amending Parts 15 and 90 of its Rules and

Regulations in the manner proposed in this proceeding, and promptly terminate this proceeding.

Respectfully submitted

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